



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PROBLEMS.

289. (*Selected*) By Prof. M. L. Comstock.—In any spherical triangle, show that

$$\tan c = \frac{\cot A \cot a + \cot B \cot b}{\cot a \cot b - \cos A \cos B}.$$

290. By Geo. Lilley, A. M., Corning, Iowa.—Integrate

$$dy = \frac{dx}{n\epsilon^x - 2(2x+1)},$$

where ϵ is the Napierian base and n a constant.

291. By Prof. W. W. Johnson.—If ABC , $A'B'C'$ are two trirectangular triangles on the surface of a sphere (the letters being arranged in the inverse order of rotation); show that

$$\cos AA' = \cos BB' \cos CC' - \cos B'C \cos BC'.$$

292. By Chas. H. Kummell, U. S. Lake Survey, Detroit, Mich. — Two surveyors measure a plane quadrangular field, one measuring the four sides a , b , c , d with a chain and the other, the angles (ab) , (bc) , (cd) , (da) with a theodolite. From former experience it is known that the first is liable to a probable error of m inches per chain and the other to a probable error of n'' per angle. Required the weights of the linear and angular measurements, also conditions to be fulfilled by the measured quantities in approximate linear form and the analytical formation of the normal equations for determining the most probable corrections to the measured quantities.

293. By R. J. Adcock, Roseville, Ill.—Assuming that the surface of the earth is an ellipsoidal level surface, whose principal diameters are $2a$, $2b$, $2b_1$, the force of gravity at their extremities, p , q , r ; what then is the force of gravity at any other point whose latitude is l , and longitude, measured from the meridian of one extremity of $2a$, is L ?

294. By Alex. S. Christie, U. S. Coast Surv., Wash., D. C.—One curve rolls upon another; prove that a series of carried parallel curves envelope a series of parallel curves, or, involutes of the same evolute envelope involutes of the same evolute.

295. By Professor Hall.—Given the common astronomical equations

$$\tan(\lambda - \varrho) = \cos i \tan u,$$

$$\sin \beta = \sin i \sin u,$$

eliminate u , and show in this manner that

$$\tan \beta = \tan i \sin(\lambda - \varrho).$$